

CLAIMS:

1. A method of performing early stencil rejection, comprising:
 - comparing a first stencil function used to generate a stencil result to a second stencil function; and
 - modifying coverage data when the first stencil function matches the second stencil function to produce modified coverage data.
2. The method of claim 1, further comprising shading a fragment associated with the modified coverage data.
3. The method of claim 1, wherein the stencil result includes compressed data representing stencil test results for at least two stencil values.
4. The method of claim 1, wherein the first stencil function is a predicted stencil function.
5. The method of claim 1, wherein modifying coverage data includes negating a portion of the coverage data when the stencil result indicates a stencil value corresponding to the portion of the coverage data failed a stencil test.
6. The method of claim 1, wherein modifying coverage data includes culling at least one fragment associated with the modified coverage data.
7. The method of claim 1, further comprising:
 - determining whether the first stencil function matches the second stencil function;
 - determining whether the second stencil function is a subset of the first stencil function if the first stencil function does not match the second stencil function; and
 - modifying the coverage data if the second stencil function is a subset of the first stencil function.
8. The method of claim 1, further comprising:
 - determining that stencil writes are disabled prior to modifying the coverage data.
9. The method of claim 1, further comprising:
 - receiving a stencil command including a stencil operation which disables stencil writes that were previously enabled;

- outputting a sync token, the sync token including a copy of a sync count;
and
incrementing a counter used to generate the sync count.
10. The method of claim 9, further comprising:
determining whether the sync count is equal to a received sync count prior to modifying the coverage data.
11. An early stencil rejection system, comprising: /
a storage resource configured to store stencil results; and
a test unit coupled to the storage resource, the test unit configured to read a portion of the stencil results and to modify coverage data, producing modified coverage data.
12. The early stencil rejection system of claim 11, wherein the test unit is configured to compare a stencil criterion to a stencil function.
13. The early stencil rejection system of claim 11, further comprising an aggregation unit coupled to the storage resource, the aggregation unit configured to receive stencil data and produce stencil results.
14. The early stencil rejection system of claim 13, further comprising a stencil test result unit coupled to the aggregation unit, the stencil test result unit configured to generate the stencil data by applying a stencil criterion to at least one stencil value.
15. The early stencil rejection system of claim 11, wherein a fragment shader is coupled to the test unit, the fragment shader configured to receive the modified coverage data and fragment data, producing shaded fragment data.
16. The early stencil rejection system of claim 11, further comprising a raster operations unit coupled to the stencil aggregation unit, the raster operations unit configured to provide stencil data to the stencil aggregation unit.
17. A method of performing early stencil rejection, comprising: /
producing stencil data using a predicted stencil function; and

modifying coverage data using the stencil data responsive to a comparison between the predicted stencil function and a stencil function.

18. The method of claim 17, wherein the coverage data is modified when either the stencil function is a subset of the predicted stencil function or the stencil function is the same as the predicted stencil function.

19. The method of claim 17, further comprising:

updating the stencil data when a stencil value has changed.

20. The method of claim 17, further comprising:

updating the stencil data when the predicted stencil function has changed.